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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/916.087

07/26/2001

Robert Tso

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09/18/2006

THE ECLIPSE GROUP
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EXAMINER

CORRIELUS, JEAN B

ART UNIT

PAPER NUMBER

2611

DATE MAILED: 09/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/916,087	Applicant(s) TSO ET AL.	
	Examiner Jean B. Corrielus	Art Unit 2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 12-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 12-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/21/06 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3-7, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woo et al US Patent No. 6,125,135 in view of applicant's admitted prior art page 8, lines 7-10.

Woo et al discloses a Global Positioning System (GPS) receiver (fig. 1), comprising: a Radio Frequency Front End encompassed by elements 103 and 106, comprising: single stage downconverter 103 using dual mixers 205 and 206; an I/Q intermediate Frequency (IF) filter (210 and 211), coupled to the downconverter 103; an Automatic Gain Control (AGC) amplifier 215-222, coupled to the downconverter 103; an

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analog-to-Digital Converter (ADC) 223-224, coupled to the AGC amplifier (215-222; and a frequency synthesizer section (225) inherently including an integrated Voltage Controlled Oscillator; and a digital processing section (111 and 112), coupled to the RF Front End. However, Woo et al does not explicitly teach that the I/Q IF filter is an active filter it also fails to teach that the noise bandwidth of the GPS receiver is set by the IF active filter. However, configuring the I/Q IF filter as an active filter is old and well established in the art given that, it would have been obvious to one skill in the art to configure Woo et al as an active type filter as such filter consumes less chip area as oppose to regular type filter. In addition, active filters provide signal gain that is required by many practical applications such as GPS systems. Furthermore, applicant 's admitted prior art at page 8, lines 7-9, teaches that it is well known in the art to set a noise bandwidth of a GPS receiver using a filter. Given that fact, it would have been obvious to one skill in the art to use the filter of Woo to set the bandwidth noise of the receiver in order to limit unwanted out of bands signals.

As per claim 3, it would have been obvious to one skill in the art to use generate output signals from the RF front end compatible with PECL as PECL are known in the art to generate high speed high speed output signals.

As per claim 4, it would have been obvious to one skill in the art to configure Woo and applicant's admitted prior art to include an acquisition signal generated by the frequency synthesizer in order to control received signal acquisition.

As per claim 5, it would have been obvious to one skill in the art to set the frequency acquisition to approximately equal to $37.3333f_0$, where $f_0=1.023\text{MHz}$ so as to satisfy system design requirements.

As per claim 6, it would have been obvious to one skill in the art to include a GPS clock output from the synthesizer in order to synchronize the receiver with the transmitting station.

As per claim 7, it would have been obvious to one skill in the art to set the GPS clock signal to approximately equal to $48f_0$, where $f_0=1.023\text{MHz}$ so as to satisfy system design requirements.

As per claim 15, the GPS receiver includes an antenna 101 (external antenna assembly).

As per claim 17, it would have been obvious that the RF front end would have included an external loop filter so as satisfy system design requirements.

4. Claims 2 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woo et al US Patent No. 6,125,135 in view of applicant's admitted prior art page 8, lines 7-10 and further in view of Ciccarelli et al, US Patent No. 6,359,940.

As per claim 2, Woo and applicant's admitted prior art teach every feature of the claimed invention but do not teach the further limitations of a Low noise Amplifier (LNA) coupled to an RF band select filter, which is coupled to an RF input of the front-end. In the same field of endeavor, Ciccarelli et al teaches fig. 1 the further limitations of a Low noise Amplifier (LNA) coupled to an RF band select filter 14, which is coupled to an RF

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input of the front-end see fig. 1. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Woo and admitted prior art in order to amplify and select the signal of interest for further processing.

As per claim 16, note that Ciccarelli et al teaches a band pass filter 14. The reason to combine would have been the same as provided above in reference to claim 2.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Woo et al US Patent No. 6,125,135 in view of applicant's admitted prior art page 8, lines 7-10 and further in view of Hughes et al US patent publication No. US 2003/01532289 A1.

As applied to claim 1 above, Woo et al and applicant's admitted prior art page 8, lines 7-10 teach the invention substantially as claimed but do not explicitly teach a combiner to combine the filtered signal prior to providing said signal to the AGC amplifier. Hughes teaches the further limitation of combining the filtered I and Q signal in combiner 152 and provides the combined signal to an AGC circuit 162. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Woo et al and applicant's admitted prior art in order to reduce the complexity of the system since only a single gain control circuit would have been required after signal combining.

Claim Objections

6. The objection to claims 2 and 12-14 is withdrawn on light of the amendment filed on 1/26/06.

Double Patenting

7. The double patenting rejection has been withdrawn in view of the terminal disclaimer filed on 8/21/06.

Terminal Disclaimer

8. The terminal disclaimer filed on 8/21/06 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US patent No. 6,856,794 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Arguments

9. Applicant's arguments filed 8/21/06 have been fully considered but they are not persuasive. It is alleged that the combination of Woo et al and applicant's admitted prior art do not teach "an I/Q IF active filter". As noted above, Woo et al teaches "an I/Q IF filter (210 and 211)" and fails to positively teach that the filter is an active filter. Note that, as evidence by US patent No. 6,262,623; US Patent No. 6,271,720 (col. 1) and US patent No. 6,055,265 (fig. 1, 71-73) teaching of active filters are well known in the art. Given that fact, one of ordinary skill in the art at the time of the invention would have been motivated to implement the filter of Woo et al as an "I/Q IF active filter" for the reasons provided above. Applicant further stated that since the primary reference is silent about whether or not the I/Q IF filter is an active filter, the art of configuring an active filter is irrelevant. Examiner disagrees and maintains that given the disclosure available to one skill in the art about "active filters" the combination would have been

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obvious to one skill in the art see comment above. It is the applicant position that the combination of the prior art with respect to claim 1 lacks of proper motivation. However it is noted that proper motivation for making the combination is provided above and such motivation is generally available to one of ordinary skill in the art see for instance US patent No, 6,271,720 col. 1, line 60-col. 2, line 5 and US patent No. 6,262,623 in which both provide a motivation to use an active filter.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is 571-272-3020.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jean B Corrielus
Primary Examiner
Art Unit 2611

9-14-06